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the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes

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are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas; and

the hole density of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

4. A processing apparatus according to claim 1, wherein;  
the hole density of said gas supply holes is constant over the  
entire surface;

the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas; and

the hole radius of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

5. A processing apparatus according to any of claims 1, wherein;  
the ratio of the number of said primary gas supply holes per unit area and the number of said circulating gas supply holes per unit area at said gas supply mechanism is constant over the entire surface of said gas supply mechanism.

6. A processing apparatus according to any of claims 1, wherein; the conductance of said circulating gas supply system is set higher than the conductance at said gas supply mechanism.

7. A processing apparatus according to any of claims 1, wherein;

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a second primary gas supply system is provided to supply said primary gas through said circulating gas supply holes, with a means for flow rate adjustment for said primary gas provided at said second primary gas supply system.

8. A processing apparatus according to any of claims 1, wherein;  
a buffer space is provided at said gas circulating mechanism  
and / or said circulating gas supply system.
9. Processing apparatus according to any of claims 1, wherein;  
a means for filtering said circulating gas is provided at said gas  
circulating mechanism and / or said circulating gas supply system.
10. A processing apparatus according to any of claims 1, wherein;  
the rate at which said primary gas is supplied through said  
primary gas supply holes into said processing chamber and / or the  
rate at which said circulating gas is supplied through said circulating  
gas supply holes into said processing chamber is set equal to or  
higher than 500 m / sec.

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